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WE CLAIM:

1. An organized array of metal clusters, comprising:  
monodispersed, ligand-stabilized metal clusters having metal-cluster radiuses of  
5 from about 0.7 nm to about 1.8 nm, the metal being selected from the group consisting  
of Ag, Au, Pt, Pd and mixtures thereof;  
a linear, biomolecular scaffold, the metal clusters being bonded to the scaffold;  
and  
a substrate, the scaffold being coupled to the substrate at predetermined  
10 positions to form organized, one-dimensional arrays that are electrically isolated from  
one another and having a linear increase in current above a threshold in applied voltage.
2. The array according to claim 1 wherein the scaffold comprises molecules  
selected from the group consisting of polynucleotides, polypeptides, and mixtures  
15 thereof.
3. The array according to claim 2 wherein the scaffold comprises  
polypeptides capable of forming  $\alpha$  helices.